<u>ABSTRACT</u>

The invention refers to a method of transmitting Ethernet data frames from a first local area network (LAN) to a second local area network (LAN) comprising mapping Ethernet frames from the first local area network onto Plesiochronous Digital Hierarchy format via Generic Framing Procedure (GFP) and transmitting the mapped Ethernet frames via a one or multiple En streams to an optional SDH-level network. The transmission is received at the second local area network through the optional SDH-level network via one or multiple En streams-network, and the Ethernet frames are demapped from the first local area network via Generic Framing Procedure, and transmitted into the second local area network.